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ABSTRACT

Major sex differences in occupational and educational attainment are summarized and a rationale and supporting evidence presented for reducing such sex differences by strengthening across-sex task interaction and reward interdependence in school classrooms, thus strengthening across-sex peer influence. An experimental design is suggested, though not implemented, which would analytically separate the effects of cooperative and competitive task interaction from those of positive and negative reward interdependence. Thus, it is hypothesized that both task interaction and reward interdependence would contribute to strengthening across-sex task-related interaction outside of the formal task-reward setting. Appendix A includes student self-report measures of the dependent variables of interest, and Appendix B discusses several problems encountered in reviewing the literature on sex differences and sex discrimination. (Author)

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RATIONALE AND DESIGN FOR REDUCING SEX DIFFERENCES IN OCCUPATIONAL AND EDUCATIONAL ATTAINMENT BY STRENGTHENING ACROSS-SEX PEER INFLUENCES

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The Johns Hopkins University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family, and peer group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The School-Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. The Careers program (formerly Careers and Curricula) bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report presents a rationale and research design for an experimental study to employ across-sex peer influences in the classroom to help reduce sex differences in occupational and educational attainment.

Rationale and Empirical Background

Only recently have the analysis and attenuation of sex differences in educational and occupational attainment and related behaviors become "legitimate" concerns. This recent change in focus in both social science and social engineering no doubt owes much to the growing concern for providing equal educational and occupational opportunities regardless of such demographic characteristics as race and sex. Democratic ideals and a more efficient use of human resources provide rationales for the concern with equal opportunities. Of course, equal opportunities, even if provided, do not guarantee equal outcomes for the sexes. However, it is assumed that providing more equal opportunities for the sexes would at least reduce sex differences in educational and occupational attainment.

Sex Differences in Occupational Attainment[1]

A primary commitment to marriage and family apparently represents a socially approved alternative to occupational attainment for females, but not for males. Thus, fewer females than males enter the labor force. The present focus, however, is on sex differences in the selecting and sorting of people within the labor force. In this regard females are grossly under-represented among the most socially desirable occupations--those which offer the highest incomes, prestige, and self-determination. For example, females are under-represented among the professional and technical occupational categories, and among managers, officials, and proprietors. Even within the professional and technical categories females are under-represented among the more prestigious occupations--

medical doctors, dentists, lawyers, and college professors--and over-represented among the less prestigious occupations--nurses, dental assistants, legal secretaries, and elementary school teachers.

Sex Differences in Educational Attainment

Sex differences in college curricula placement appear to parallel those in occupational placement. Thus, females are under-represented among those preparing to be medical doctors, dentists, and lawyers, and over-represented among those preparing to be nurses, medical technicians, and elementary school teachers.

Not only do college males and females receive different kinds of training, they receive different amounts as well. Although more females than males graduate from high school, more males than females enter college. Furthermore, the educational liability of females increases dramatically at each subsequent educational level: the gap between the numbers of males and females receiving degrees is wider at the master's degree level than at the bachelor's, and wider at the Ph.D. and professional degree level than at the master's. This pattern is consistent with Bruemmer's (1969) finding that, as graduation approaches, college females report becoming more interested in being housewives and less interested in receiving further education and pursuing a career.

Alexander and Eckland (1974) recently attempted to account for sex differences in higher educational attainment by including in their analysis a large number of variables related to educational attainment. The sex effect remained despite simultaneous controls on such factors as academic ability, socioeconomic status background, academic performance, educational aspirations, academic self-confidence, curriculum

enrollment, and encouragement from parents, teachers, and peers. Thus, in terms of the factors we normally use to account for variation in educational attainment, the sex difference is apparently extremely robust.

Sex Differences in Secondary School

Career plans. Frazier and Sadker (1973), and Sadker (1973) cite several studies indicating sex differences in early career plans. In one study (Bem & Bem, 1970) of a sample of ninth graders, 25 percent of the males but only three percent of the females reported considering a career in science or engineering. Although high school females apparently consider a wider range of careers than they did in the past, their knowledge of the skills, training, and other activities associated with various careers is substantially less than that of high school males (Iglitzen, 1972). Consistent with the evidence cited for college samples, the career commitments of females weaken during high school, whereas those of males strengthen (Hawley, 1971). Thus, it is not surprising that females are over-represented among qualified high school graduates who do not attend college.

Academic achievement.[2] The under-representation of females in college is inconsistent with the finding that females generally receive higher grades in high school than males. Although the overall achievement test scores of males and females are similar, females generally score higher than males on the verbal components of achievement tests, whereas males generally score higher on the mathematical or quantitative components. Males also outperform females on tasks requiring specification of spatial relations among figures or objects, an ability that

presumably facilitates achievement in engineering design and drafting. Although the sex differences in mathematical and visual-spatial abilities are consistent with the finding that females are grossly under-represented among those choosing math, science, and engineering as a career, it is unlikely that the rather small sex differences in the abilities alone account for the large sex differences in the proportions who choose the careers.

Intervention in Secondary Schools

With federal legislation requiring professional schools and corporations to provide equal access for females, the formal responsibility for motivating and training females for a wider range of careers will fall largely to the schools. Early family influences (e.g., sex-role socialization patterns) are no doubt also strongly implicated in the reported sex differences, but parental socialization practices are not currently considered as a legitimate and feasible locus for direct intervention. Thus, schools are viewed as the most appropriate instruments of change.

Schools have traditionally incorporated certain patterns of differential socialization by sex found in society at large. Among such patterns discussed by Frazier and Sadker (1973) are differential treatment of the sexes by teachers and guidance personnel, sex bias and stereotyping in text books, and differential opportunities for developing certain academic and athletic skills. These sources of sex discrimination in schools have received general recognition.

Furthermore, the development of remedial curricular materials and teacher training aids emerging from the 1972 Conference on Sex Roles and Sex-Role Stereotypes held by the National Educational Association suggests that remedial steps are being taken to reduce these influences in our schools.

Certain other patterns of sex discrimination have either been completely ignored or have not been regarded as requiring remedial treatment. These patterns involve sex discrimination by students themselves. One of the most pervasive of these patterns involves differential association by sex. Thus, peer socialization in schools occurs predominately within same-sex peer groups.

Beginning with Moreno's (1934) early investigations of sociometric choice, there is vast evidence indicating that friendship choices among students are predominately within-sex choices. This pattern holds for nursery school children (Abel & Sahinkaya, 1962; Moore & Updegraff, 1964), elementary school children (Gronlund, 1953; Bonney, 1954; Koch, 1957), teenagers (Faunce & Beegle, 1948; Bjerstedt, 1952), and even for middle-aged adults (Booth, 1972). Also, when students choose someone to work or study with, they overwhelmingly make within-sex choices (DeVries & Edwards, 1974, Hulten, in process). Other evidence suggests that within-sex preferences may emerge earlier and be more resistent to extinction than within-race preferences. Abel and Sahinkaya (1962), for example, found significant within-sex preferences among four-year olds, whereas significant within-race preferences did not appear until age five. In a study involving seventh graders, DeVries and Edwards (1974) found the proportions of both within-sex friendships and within-sex task-sharing

relations to be greater than the respective proportions of within-race relations.

These patterns of differential association by sex (i.e., sex discrimination) within schools correspond to patterns observed outside of schools--patterns which apparently reinforce treating members of the opposite sex as potential marriage partners, but not as potential peers, work colleagues, or friends. Specifically, the across-sex relations reinforced in the school setting (e.g., dating to dances and athletic events) apparently socialize students for subsequent mate selection, and perhaps even for traditional sex-typed roles. On the other hand, interacting with members of the opposite sex as peers, work colleagues, and friends is apparently infrequently reinforced in school settings (Coleman, 1964).

Assuming that peer socialization affects aspirations and plans, it is also reasonable to assume that such voluntary patterns of sex segregation, which include task relations as well as friendships, contribute in some way to the reported sex differences in educational and occupational attainments. Predominately within-sex socialization is likely to restrict rather than widen the range of careers considered by students. It should be noted that the Supreme Court apparently used a similar rationale in challenging "separate but equal" racial segregation policies and practices. Today the same rationale is apparently behind the concern for the complete internal racial integration of desegregated schools; i.e., for establishing mixed-race peer groups. The implication of the within-sex peer socialization pattern is that the pattern is likely to be maintained in subsequent educational and occupational settings.

In fact, evidence suggests that many people find it more discomforting to work with peers of the opposite sex than with peers of the same sex (Bowman, Wortney, and Greyser, 1965; O'Leary, 1974). To the extent this is the case, females are unlikely to have equal opportunities for participation, influence, and advancement in traditionally male dominated occupations and organizations.

Strengthening Across-Sex Task Interaction

The present concern is strengthening across-sex task interaction in schools by manipulating classroom task and reward structures. Because it is assumed that the procedures which effectively strengthen across-race interaction will also strengthen across-sex interaction, the race relations literature is relevant.

Several investigators have recommended the use of biracial student teams to strengthen interracial interaction and acceptance (Allport, 1954; Katz, Goldston, and Benjamin, 1958; Gottlieb, 1965; Thelen, 1970). In a study using four-member biracial task groups, Katz, et al., (1958) found no differences in across-race interaction (communication) between task groups in which group members performed independently but were rewarded as a group, and task groups in which group members performed together but were rewarded individually. In neither treatment was the general pattern of communication altered. In both cases communications were directed predominately toward white members. Katz and Benjamin (1960) and Cohen (1969) performed modified replications of the Katz, et al., study with essentially the same results.

In a longer term study, Witte (1972) created biracial groups in a college classroom by having group members work on tasks individually (task independence), but rewarding students on the basis of group rather than individual performance. Several measures taken near the end of the semester indicated an increase in interracial acceptance.

As suggested by DeVries and Edwards (1974), the differences in the apparent effectiveness of the Katz studies and the Witte study might be due to several sources. First, Katz created ad hoc groups and tasks, whereas Witte used the natural classroom setting and academic tasks. Second, group members performed in the experimental settings for only a brief time in the Katz studies, whereas they were together for an extended time in the Witte study. Finally, in the Witte study the teacher directly reinforced interracial interactions. Although the relative contributions of task and reward interdependence have not been determined, much of the evidence suggests that across-race interaction can be strengthened by having students of different races work together for group rewards over an extended period of time.

DeVries and Edwards (1974) provide evidence that across-sex interaction can be strengthened by creating mixed-sex team competition even when team members perform separately as representatives of their teams rather than together as a team. An increase in across-sex helping on academic tasks was observed during "practice sessions" during which students were allowed to help one another in preparation for individual competition at their respective game tables. The effect also generalized to include a significant increase in reported across-sex friendships.

The DeVries and Edwards findings suggest that the familiar proposition that intergroup competition increases intragroup attraction and cohesion (e.g., Sherif and Sherif, 1953; Deutsch, 1949a, 1949b) generalizes to include across-sex relations. However, several important questions remain unanswered. First, what was the primary source of change? Was the increase due primarily to students being on mixed-sex teams (i.e., being in reward interdependence with members of the opposite sex), or did face-to-face task competition with members of both sexes (i.e., competitive task interdependence) contribute substantially to the observed increase? Second, would the increase have been even greater if teammates had performed together (i.e., cooperative task interdependence) in face-to-face task competition with other teams rather than performing individually as representatives of their respective teams? Finally, how long was the observed change maintained after termination of treatment? Are the observed effects of effective task and reward structures maintained after termination of treatment, or must they apply continuously in order to be effective?

Investigating Classroom Task-Reward Structure Effects

Theoretical Formulation

Answers to the above questions require analyses of the effects of systematic manipulations of both reward interdependence and task interdependence. Reward interdependence among performers may be (a) absent (e.g., individual reward contingencies); (b) positive (common fate); or (c) negative (sometimes labeled competition). Task interdependence among performers may be (a) absent (performers work independently); or (b) present (performers interact on the task). The task interaction required under task interdependence may be either cooperative or competitive, depending on whether the performers are operating under positive

or negative reward interdependence respectively. Thus, reference to the form of reward interdependence present is necessary in order to determine the form task interaction will take when task interdependence is present.

Reward and task interdependence may each apply at the individual level only, the group level only, or at both individual and group levels simultaneously. Eight individual and group task-reward structures which result from combinations of specific forms of task and reward interdependence are labeled and described in Figure 1. The four unlabeled cells of Figure 1 represent structures that are operationally feasible but

Insert Figure 1 About Here

practically and theoretically uninteresting. Structures 1 through 5 are fairly simple and straightforward.

Structures 6 through 8 require further elaboration. Individual behavior contributes to group performance and outcomes in all three structures. Structure 6 uses the outcomes of separate individual competitions to determine group scores or outcomes, but this structure involves no task interaction. In structure 7 individuals representing their respective groups or teams interact competitively on a task, and the outcomes of the individual competitions are aggregated to determine team scores or outcomes. Intercollegiate tennis and wrestling matches are examples of structure 7. This structure was implemented by DeVries and Edwards (1974) under the label of Teams-Games-Tournament (TGT) to strengthen the academic performance and across-race and across-sex task interaction of students in math classes.

Structure 8 would place teammates in "side-by-side" cooperative task interaction and "face-to-face" competitive task interaction with members of another team. Intercollegiate football and basketball are examples of structure 8.

Determining Task and Reward Interdependence Effects

Figure 1 suggests the research design and analysis of variance (ANOVA) model which could be used to determine the relative effects of task and reward interdependence in strengthening across-sex task interaction and friendship preferences. Implementation of structures 2 through 8, for example, would provide a 2 X 3 ANOVA model testing the effects of task interdependence (two levels) and reward interdependence (three forms). Separate paired comparisons for task interdependence effects would involve comparing the across-sex task interaction and friendship preferences which occur under structures 3,5, and 7 with those which occur under structures 2,4, and 6 respectively. The analysis of reward independence effects would involve comparisons across columns (i.e., structures 2 and 3 versus structures 4 and 5 versus structures 6 and 7).

Dependent Variables

The major dependent variables of interest are across-sex task interaction and friendship preferences. However, the various structures actually require varying degrees of task interaction in the formal task setting. Thus, the primary interest would be on the extent to which the various structures strengthen across-sex task interaction and friendship outside of the formal task situation. In other words, we would be interested in the degree of generalization of across-sex

relations to settings other than the formal task setting. DeVries and Edwards (1974), for example, measured the frequency with which students voluntarily worked together during "practice periods" in preparation for formal task sessions. They also asked students to report the names of their friends in class to determine the frequency of across-sex friendships. In its athletic application, structure 8 is noted for strengthening team cohesion outside of formal team competition. Teammates not only frequently practice together voluntarily (e.g., running pass patterns in football and playing one-on-one in basketball), but also frequently become close friends. Items 1 through 6 on Questionnaire 1 (Appendix A) were designed to provide student self-report measures of task sharing and friendships.

Classroom task-reward structures might also affect students' attraction to the subject matter and to the class, level of effort applied, and perceived difficulty of the subject matter. Items 7 through 12 of Questionnaire 1 were designed to measure these outcomes. The items are specifically designed for use in math classes.

The perceived importance of the subject matter for subsequent educational and occupational plans might also be affected by variations among classroom task-reward structures and the peer influences they bring into play. Items 13 through 21 of Questionnaire 1 were designed to measure these influences. Finally, in conjunction with other sex related changes in schools, classroom task-reward structures might conceivably affect more general sex-role discriminations and stereotypes related to the academic skills, career choices, child rearing practices, and distribution of family responsibilities. The 15 items of Questionnaire 2 (Appendix A) were designed to measure effects on these variables.

Notes

1. Unless otherwise indicated, the findings reported in this and the following section are taken from information presented by Ferriss (1971).

2. Findings reported in this section are based largely on the conclusions drawn by Maccoby and Jacklin (1974) following their extensive review of the literature.

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Task Interdependence	Reward Interdependence: Absent	Positive	Negative	Positive and Negative
Absent	Structure 1 Individual reward contingencies	Structure 2 Group reward contingencies - group members work independently on individual tasks.	Structure 4 Individual competition - competitors work independently on individual tasks.	Structure 6 Individual intergroup competition on independent tasks - outcomes contribute to group performance.
One Form Present		Structure 3 Group reward contingencies - group members interact cooperatively on common task.	Structure 5 Individual competition -competitors interact competitively on task.	Structure 7 Individual intergroup competition with task interaction - outcome contributes to group performance.
Two Forms Present				Structure 8 Intergroup competition with all members of all groups in task interaction.

Figure 1. Individual and Group Task - Reward Structures as Combinations of Specific Forms of Task and Reward Interdependence.

Appendix A

Questionnaire 1

(Helping and Friendships)

1. List below the names of students in this class who have helped you on practice problems.

_____ _____

_____ _____

_____ _____

2. List below the names of students in this class that you have helped on practice problems.

_____ _____

_____ _____

_____ _____

3. If you had a choice, would you rather work on practice problems with someone of your own sex or someone of the opposite sex?

_____ I'd much rather work with someone of my own sex.

_____ I'd slightly prefer to work with someone of my own sex.

_____ It makes absolutely no difference to me.

_____ I'd slightly prefer to work with someone of the opposite sex.

_____ I'd much rather work with someone of the opposite sex.

4. If you had your choice, which students in this class would you most like to work on practice problems with?

1st choice _____

2nd choice _____

3rd choice _____

5. List below the names of students in this class who are your friends.

_____ _____

_____ _____

_____ _____

6. If you had your choice, which students in this class would you most like to have as friends.

1st choice _____

2nd choice _____

3rd choice _____

(Attraction and Math Performance)

7. Compared to other math classes you've been in, how well do you like being in this class?

_____ I don't like being in this class at all.

_____ I like being in this class only a little.

_____ I like being in this class to a moderate extent.

_____ I like being in this class very much.

8. How much do you like math?

_____ I don't like math at all.

_____ I like math only a little.

_____ I like math to a moderate extent.

_____ I like math very much.

9. How important is it for you to do well in this class?

_____ Not at all important.

_____ Slightly important.

_____ Moderately important.

_____ Very important.

10. How easy or hard is math for you?

_____ Math is very hard for me.

_____ Math is fairly hard for me.

_____ Math is neither hard nor easy for me.

_____ Math is fairly easy for me.

_____ Math is very easy for me.

11. How hard have you been trying in this class?

_____ I haven't been trying at all.

_____ I've been trying only a little.

_____ I've been trying to a moderate extent.

_____ I've been trying very hard.

12. Compared to other students in this class, how well have you been doing in math?

_____ Much worse than most students.

_____ Somewhat worse than most students.

_____ About as well as most students.

_____ Somewhat better than most students.

_____ Much better than most students.

(Importance of math and career choices)

13. How much would being good at math help a person to become a scientist or engineer?

_____ Wouldn't help at all.

_____ Might help a little.

_____ Would definitely help somewhat.

_____ Would definitely help very much.

14. How much would being good at math help a person to become a social studies teacher or social worker?

_____ Wouldn't help at all.

_____ Might help a little.

_____ Would definitely help somewhat.

_____ Would definitely help very much.

15. How much would being good at math help a person to become a doctor or dentist?

_____ Wouldn't help at all.

_____ Might help a little.

_____ Would definitely help somewhat.

_____ Would definitely help very much.

16. How much would being good at math help a person to become a nurse or medical laboratory technician?

_____ Wouldn't help at all.

_____ Might help a little.

_____ Would definitely help somewhat.

_____ Would definitely help very much.

17. When the time comes do you think you will seriously consider becoming a scientist or engineer?

_____ Absolutely not.

_____ I might consider it, but not seriously.

_____ I'm almost certain to seriously consider it.

_____ I'm already planning to become a scientist or engineer.

18. When the time comes do you think you will seriously consider becoming a social studies teacher or social worker?

_____ Absolutely not.

_____ I might consider it, but not seriously.

_____ I'm almost certain to seriously consider it.

_____ I'm already planning to become a social studies teacher or social worker.

19. When the time comes do you think you will seriously consider becoming a doctor or dentist?

_____ Absolutely not.

_____ I might consider it, but not seriously.

_____ I'm almost certain to seriously consider it.

____ I'm already planning to become a doctor or dentist.

20. When the time comes do you think you will seriously consider becoming a nurse or medical laboratory technician?

_____ Absolutely not.

_____ I might consider it, but not seriously.

_____ I'm almost certain to seriously consider it.

_____ I'm already planning to become a nurse or medical technician.

21. Do you think you will attend college after you finish high school?

_____ I'm almost certain I won't attend college.

_____ I probably won't attend college.

_____ I probably will attend college.

_____ I'm almost certain I will attend college.

Questionnaire 2

(Performance in School)

1. If the boys and girls in this class competed in math, who would most likely win?

_____ Boys much more likely to win.

_____ Boys somewhat more likely to win.

_____ Boys and girls are about even in this class.

_____ Girls somewhat more likely to win.

_____ Girls much more likely to win.

2. If the boys and girls in this class competed in English, who would most likely win?

_____ Boys much more likely to win.

_____ Boys somewhat more likely to win.

_____ Boys and girls are about even in this class.

_____ Girls somewhat more likely to win.

_____ Girls much more likely to win.

3. Who should teachers encourage more to do well in math, boys or girls?

_____ Boys should be encouraged much more than girls.

_____ Boys should be encouraged somewhat more than girls.

_____ Boys and girls should be encouraged equally.

_____ Girls should be encouraged somewhat more than boys.

_____ Girls should be encouraged much more than boys.

4. Who should teachers encourage more to do well in English courses, boys or girls?

_____ Boys should be encouraged much more than girls.

_____ Boys should be encouraged somewhat more than girls.

_____ Boys and girls should be encouraged equally.

_____ Girls should be encouraged somewhat more than boys.

_____ Girls should be encouraged much more than boys.

5. Who should more seriously consider taking math and engineering courses in college, boys or girls?

_____ Boys should seriously consider much more than girls.

_____ Boys should seriously consider somewhat more than girls.

_____ Boys and girls should seriously consider equally.

_____ Girls should seriously consider somewhat more than boys.

_____ Girls should seriously consider much more than boys.

6. Who should more seriously consider taking nursing and social work courses in college, boys or girls?

_____ Boys should seriously consider much more than girls.

_____ Boys should seriously consider somewhat more than girls.

_____ Boys and girls should seriously consider equally.

_____ Girls should seriously consider somewhat more than boys.

_____ Girls should seriously consider much more than boys.

(Choosing an Occupation)

7. Who is better suited to be a scientist or engineer, boys or girls?

_____ Boys are much better suited than girls.

_____ Boys are somewhat better suited than girls.

_____ Boys and girls are equally suited.

_____ Girls are somewhat better suited than boys.

_____ Girls are much better suited than boys.

8. Who is better suited to be a nurse or medical laboratory technician, boys or girls?

_____ Boys are much better suited than girls.

_____ Boys are somewhat better suited than girls.

_____ Boys and girls are equally suited.

_____ Girls are somewhat better suited than boys.

_____ Girls are much better suited than boys.

(Child Rearing)

9. Who should parents encourage more to be independent, their sons or their daughters?

_____ Should encourage their sons much more than their daughters.

_____ Should encourage their sons somewhat more than their daughters.

_____ Should encourage their sons and daughters equally.

_____ Should encourage their daughters somewhat more than their sons.

_____ Should encourage their daughters much more than their sons.

10. Is it more important for parents to send their sons or their daughters to college?

_____ Much more important to send their sons.

_____ Somewhat more important to send their sons.

_____ Equally important to send sons and daughters.

_____ Somewhat more important to send their daughters.

_____ Much more important to send their daughters.

11. Who should parents encourage more to pursue a career, their sons or their daughters?

_____ Should encourage their sons much more than their daughters.

_____ Should encourage their sons somewhat more than their daughters.

_____ Should encourage their sons and daughters equally.

_____ Should encourage their daughters somewhat more than their sons.

_____ Should encourage their daughters much more than their sons.

(Family Responsibilities)

12. How should the responsibility for earning the family income be divided between husband and wife?

_____ The husband should be totally responsible.

_____ The husband should be mostly responsible.

_____ The husband and wife should be equally responsible.

_____ The wife should be mostly responsible.

_____ The wife should be totally responsible.

13. How should the responsibility for preparing family meals be divided between husband and wife?

_____ The husband should be totally responsible.

_____ The husband should be mostly responsible.

_____ The husband and wife should be equally responsible.

_____ The wife should be mostly responsible.

_____ The wife should be totally responsible.

14. How should the responsibility for making repairs around the house be divided between husband and wife?

_____ The husband should be totally responsible.

_____ The husband should be mostly responsible.

_____ The husband and wife should be equally responsible.

_____ The wife should be mostly responsible.

_____ The wife should be totally responsible.

15. How should the responsibility for cleaning the house be divided between husband and wife?

_____ The husband should be totally responsible.

_____ The husband should be mostly responsible.

_____ The husband and wife should be equally responsible.

_____ The wife should be mostly responsible .

_____ The wife should be totally responsible.

Appendix B

Some Problems Encountered in the Literature

Reviewing the literature on sex-differences, presumed contributing factors, and procedures for reducing observed sex differences proved to be a frustrating experience. Although the quantity of research and writings in this area has expanded rapidly in recent years, the quality of much of the work is much less impressive. It is our belief that this is at least partly due to a highly emotional involvement in providing more equal opportunities for women which many investigators in this area share. This emotional involvement has apparently led some to abandon certain elements of scientific and scholarly rigor in order to prove their case. Among the undesirable procedures we encountered on numerous occasions were the following:

1. Selective citing: Citing empirical evidence in support of the author's own position and ignoring conflicting evidence.
2. Citing outdated evidence: One author on several occasions cited empirical evidence of sex differences collected in the 1930's which more recent evidence (not cited) contradicts. Citings of findings from the 1940's and 1950's were much in evidence.
3. Drawing unwarranted conclusions: When several alternative explanations for observed differences exist, authors most frequently selected the explanation most supportive of their own position without even mentioning other possibilities.

Unwarranted conclusions took another form when authors stated that certain remedial procedures would have a certain effect in the face of empirical evidence that the procedures have no such effect.

Although these problems are characteristic of many problem areas in sociology and social psychology, they appear to occur with higher than usual frequency in the sex differences and sex discrimination literature. This is unfortunate because exaggerated and sloppy scholarship is dysfunctional to understanding and attenuating the problem.

In spite of our highly critical reaction to some of the literature, several scholarly works are available. Of these, Maccoby and Jacklin's The Psychology of Sex Differences (1974) is particularly impressive. Although the topics considered are somewhat restricted (later educational and occupational attainments are not considered), those areas considered (intellect and achievement, social behavior, and the social origins of sex differences) are extensively reviewed in a highly competent manner.

We also encountered recent articles of high quality in major journals. In fact, the apparent bi-modal distribution of the literature in terms of scientific and scholarly rigor seemed to suggest two bodies of literature--"propaganda" and "scholarly" (although we realize not everyone will agree on which articles belong in which category).

The final problem we will mention here is, we believe, a substantial one. Although the empirical evidence on sex differences is accumulating rapidly, very little research is being done on the effectiveness of the numerous remedial procedures in attenuating the status attainment differences between males and females. For example, many changes have already

been made in our schools without previous experimental evidence of their intended effects. Because such widely implemented changes are frequently expensive, and funds for education are already restricted, we suggest that such expenditures be restricted to remedial procedures of demonstrated effectiveness.